

**Supplemental
Notice of Allowability**

Application No.

09/900,760

Examiner

Bradley L. Sisson

Applicant(s)

KIM ET AL.

Art Unit

1634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to telephonic interview of 06 September 2005.

2. ☒ The allowed claim(s) is/are 41-71.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.

(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date _____

7. ☒ Examiner's Amendment/Comment

8. ☐ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR

1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with Bret Field on 06 September 2005.

3. The application has been amended as follows:

4. Please replace the prior set of claims with the following.

5. Cancel Claims 27-40.

41. **(Previously Presented)** A method for fabricating a microarray, said method comprising:

- (a) producing a polyelectrolyte layer on at least one surface of a substrate;
- (b) depositing a plurality of different aqueous volumes on said polyelectrolyte layer in an array pattern to produce an array of deposited spots, wherein each aqueous volume of said plurality comprises a polymer;
- (c) contacting said polyelectrolyte layer with a reagent comprising:
 - (i) a passivating moiety that reacts with said polyelectrolyte layer, and
 - (ii) a substrate reactive functionality; and
- (d) producing a covalent bond between said substrate reactive functionality and said substrate.

42. **(Previously Presented)** The method of claim 41, further comprising cross-linking polymers of said deposited spots onto said polyelectrolyte layer.

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43. **(Previously Presented)** The method of claim 41, wherein said polymers are nucleic acids.

44. **(Previously Presented)** The method of claim 41, wherein said polymers are peptides.

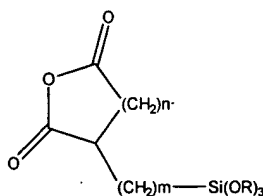
45 **[[44]]**. **(Currently Amended)** The method according to Claim 41, wherein said plurality of aqueous volumes are deposited by ink-jet deposition.

46 **[[45]]**. **(Currently Amended)** The method according to Claim 41, wherein said polyelectrolyte is a polyamine.

47 **[[46]]**. **(Currently Amended)** The method of claim **[[45]]** 46, wherein said polyamine comprises poly(L-lysine).

48 **[[47]]**. **(Currently Amended)** The method of claim 41, wherein said reagent is a trialkoxysilyl anhydride.

49 **[[48]]**. **(Currently Amended)** The method of claim **[[47]]** 48, wherein said trialkoxysilyl anhydride comprises a compound having the structure:



wherein n is either zero or an integer from 1 to 10, m is either zero or an integer from 1 to 10, and R is an alkyl or functionally terminated alkenyl group.

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50 [[49]]. (Currently Amended) The method of claim [[48]] **49**, wherein n is an integer equal to 1 or 2, and m is either zero or an integer from 1 to 4.

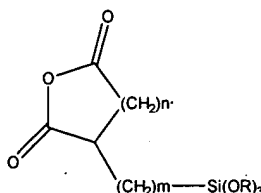
51 [[50]]. (Currently Amended) The method of claim [[47]] **48**, wherein said trialkoxysilyl anhydride comprises 3-(triethoxysilyl)propyl-succinic anhydride.

52 [[51]]. (Currently Amended) A method for fabricating a nucleic acid microarray, said method comprising:

- (a) producing a polyamine layer on at least one silica surface of a substrate;
- (b) depositing a plurality of different aqueous volumes of nucleic acids on said polyamine layer in an array pattern to produce an array of deposited nucleic acid spots;
- (c) contacting said polyamine layer with a solution of a trialkoxysilyl anhydride; and
- (d) forming a covalent bond between said anhydride and said polyamine layer and a covalent silicon-oxygen bond between said trialkoxysilyl propyl anhydride and said silica surface on said substrate.

53 [[52]]. (Currently Amended) The method of claim **52** [[51]], wherein said polyamine comprises poly(L-lysine).

54 [[53]]. (Currently Amended) The method of claim **52** [[51]], wherein said trialkoxysilyl anhydride comprises a compound having the structure:



wherein n is either zero or an integer from 1 to 10, m is either zero or an integer from 1 to 10, and R is an alkyl or functionally terminated alkenyl group.

55 [[54]]. (Currently Amended) The method of claim **54** [[53]], wherein n is an integer equal to 1 or 2, and m is either zero or an integer from 1 to 4.

56 [[55]]. (Currently Amended) The method of claim **52** [[51]], wherein said trialkoxysilyl anhydride comprises 3-(triethoxysilyl)propyl-succinic anhydride.

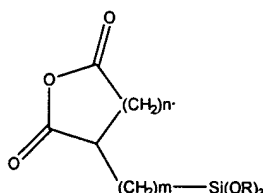
57 [[56]]. (Currently Amended) The method of claim **52** [[51]], further comprising cross-linking said nucleic acid spots onto said polyamine layer.

58 [[57]]. (Currently Amended) A method for fabricating a peptide microarray, said method comprising:

- (a) producing a polyamine layer on at least one silica surface of a substrate;
- (b) depositing a plurality of different aqueous volumes of peptides on said polyamine layer in an array pattern to produce an array of deposited peptide spots;
- (c) contacting said polyamine layer with a solution of a trialkoxysilyl anhydride; and
- (d) forming a covalent bond between said anhydride and said polyamine layer and a covalent silicon-oxygen bond between said trialkoxysilyl propyl anhydride and said silica surface on said substrate.

59 [[58]]. (Currently Amended) The method of claim **58** [[57]], wherein said polyamine comprises poly(L-lysine).

60 [[59]]. (Currently Amended) The method of claim 57, wherein said trialkoxysilyl anhydride comprises a compound having the structure:



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wherein n is either zero or an integer from 1 to 10, m is either zero or an integer from 1 to 10, and R is an alkyl or functionally terminated alkenyl group.

61 [[60]]. (Currently Amended) The method of claim **60 [[59]]**, wherein n is an integer equal to 1 or 2, and m is either zero or an integer from 1 to 4.

62 [[61]]. (Currently Amended) The method of claim **58 [[57]]**, wherein said trialkoxysilyl anhydride comprises 3-(triethoxysilyl)propyl-succinic anhydride.

63 [[62]]. (Currently Amended) The method of claim **58 [[57]]**, further comprising cross-linking said nucleic acid spots onto said polyamine layer.

64 [[63]]. (Currently Amended) The method of claim 17, wherein said depositing step (b) comprises depositing a plurality of different aqueous volumes of ligands on said polyelectrolyte layer.

65 [[64]]. (Currently Amended) The method according to Claim **64 [[63]]**, wherein said ligands are nucleic acids.

66 [[65]]. (Currently Amended) The method according to Claim **64 [[63]]**, wherein said ligands are peptides.

67 [[66]]. (Currently Amended) The method according to Claim **64 [[63]]**, wherein said plurality of aqueous volumes are deposited by ink-jet deposition.

68 [[67]]. (Currently Amended) The method of claim 20, wherein said depositing step (b) comprises depositing a plurality of different aqueous volumes of ligands on said polyelectrolyte layer.

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69 [[68]]. (Currently Amended) The method according to Claim [[67]] **68**, wherein said ligands are nucleic acids.

70 [[69]]. (Currently Amended) The method according to Claim [[67]] **68**, wherein said ligands are peptides.

71 [[70]]. (Currently Amended) The method according to Claim [[67]] **68**, wherein said plurality of aqueous volumes are deposited by ink-jet deposition.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley L. Sisson whose telephone number is (571) 272-0751.

The examiner can normally be reached on 6:30 a.m. to 5 p.m., Monday through Thursday.

7. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones can be reached on (571) 272-0745. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Bradley L. Sisson
Primary Examiner
Art Unit 1634

BLS
07 September 2005